

REMARKS

Claims 51-68, 70-76 and 78-94 are pending in this application, claims 69 and 77 having been previously canceled. By this Amendment, claims 58, 67 and 76 are amended. The amendments add no new matter. Reconsideration of the application based on the above amendments and the following remarks is respectfully requested.

Applicants appreciate the courtesies shown to Applicants' representative by Examiner Chen in the June 17, 2005 personal interview. Applicants' separate record of the substance of the interview is incorporated into the following remarks.

The Office Action, in paragraph 15, states that claims 88-94 are allowed, and indicates that claims 61-63 and 83 recite allowable subject matter. Applicants appreciate the allowance of claims 88-94. Further, Applicants appreciate the indication of allowability of claims 61-63 and 83, but submit that at least independent claims 58 and 76 from which these claims respectively depend are allowable for the reasons indicated below.

A. The Office Action, in paragraph 1, rejects claim 67 under 35 U.S.C. §102(b) as being anticipated by Japanese Patent No. JP 10-081964 A to Akiyama et al. (hereinafter "Akiyama"). This rejection is respectfully traversed.

Akiyama is directed to improving mechanical characteristics of a substrate such as warp or tilt after the substrate has been subjected to sputtering so that an optical recording medium small in distortion can be produced (Abstract and blocks [0009] and [0014]). Akiyama discloses that at the time of producing an optical disk, the position of the outer circumferential part is made higher than the contact position in the inner circumferential part to stably produce an optical recording medium with excellent mechanical properties, such angle of the holder section maintained desirably in a range such that $\tan\theta$ is 0.01-0.15 or, more desirably, 0.03-0.12 (Abstract and block [0015], emphasis added). The angle of the holder does not correlate to the angle of the finished substrate to this invention as is reflected in Table I.

The Office Action, in paragraph 16, responds to Applicants' previous arguments by stating that where Applicants argued that the tilts of the substrates in the manufacturing examples of Akiyama are less than 10 mrad, the Examiner's position is that the claim does not recite that the substrate is manufactured.

Claim 67 is amended to recite a disk substrate for an optical disk, the substrate having an axis of rotation and a thickness of < 0.8 mm, wherein a disk plane tilts at a tilt angle θ , which satisfies $10 \text{ mrad} \leq \theta \leq 20 \text{ mrad}$, with a plane perpendicular to the axis of rotation after the substrate has been manufactured.

Applicants' representative discussed the amended claim language with Examiner Chen during the June 17 personal interview. The Examiner indicated that the amendment to claim 67 appears to overcome the applied prior art references.

For at least this reason, Applicants respectfully submit that Akiyama cannot reasonably be read to teach, or even to have suggested, the combination of features recited in claim 67. Accordingly, reconsideration and withdrawal of the rejection of claim 67 under 35 U.S.C. §102(b) as being anticipated by Akiyama is respectfully requested.

B. The Office Action, in paragraph 2, rejects claim 76 under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 5,581,423 to Yokouchi. This rejection is respectfully traversed.

Yokouchi discloses a disk drive apparatus including a spindle for engagement with a central hole of a disk hub of a magnetic disk, a rotary member affixed to the spindle, a chucking magnet provided on the rotary member for tracking the disk hub, and a chucking lever pivotally provided on the rotary member which comes into engagement with a drive hole formed in the disk hub of the rotary disk (Abstract). The Office Action asserts that Fig. 9 discloses a record disk having a disk plane substantially tilting with respect to a plane perpendicular to the axis of rotation. This is an inaccurate interpretation of the disclosure of

Yokouchi. Fig. 9 depicts a tilt of a disk plane, as described at col. 9, lines 18-29, that is an abnormal condition which embodiments of the Yokouchi device are intended to overcome. Specifically, Yokouchi teaches that it is possible that the disk hub 10a will come into contact with the chucking magnet 32 in such an inclined position. If the chucking magnet 32 is made of a material having a larger friction coefficient (such as a rubber magnet), the disk hub 10a will turn together with the chucking magnet, with the result being that the drive pin portion 33a cannot come into engagement with the drive hole of the disk hub 10a. A solution that Yokouchi proposes is that a low friction (slippery) sheet is bonded to the upper surface of the chucking magnet 32, or a low friction coating is applied thereto (col. 9, lines 30-34).

Claim 76 recites, among other features, a driving unit that drives a record disk having a substrate which has a disk plane tilting substantially with respect to a plane perpendicular to an axis of rotation of the substrate and the disk plane tilting symmetrically with respect to the axis of rotation. The abnormal condition depicted in Fig. 9 of Yokouchi cannot reasonably be read to teach, or even to have suggested, at least this feature of claim 76.

Applicants' representative presented the above arguments to Examiner Chen during the June 17 personal interview. The Examiner indicated that the proposed amendments to claim 76 appeared to overcome the prior art rejections of the Office Action.

For at least this reason, Applicants respectfully submit that Yokouchi cannot reasonably be read to teach, or even to have suggested, the combination of all of the features recited in claim 76. Accordingly, reconsideration and withdrawal of the rejection of claim 76 under 35 U.S.C. §102(b) as being anticipated by Yokouchi are respectfully requested.

C. The Office Action, in paragraph 3, rejects claims 51, 54 and 56 under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 5,987,003 to Yokota in view of U.S. Patent No. 5,323,381 to Takahashi et al. (hereinafter "Takahashi"). This rejection is respectfully traversed.

Yokota teaches a disk substrate with an outer non-recording area, a recording area, an inner non-recording area and a central opening, with the inner non-recording area occupying an area 3 to 30% of the entire disk area including the central opening (Abstract). The Office Action recognizes that Yokota does not show a hub provided at the center of the substrate, the hub having a diameter which is 26% or more than that of the optical disk; the optical disk satisfies the relationship of $Y \text{ over } X \geq 0.015$ (claim 51) or 0.02 (claim 56), where X is a projected area of the substrate, and Y is a contact area between the hub and the substrate, as is recited, among other features, in claims 51 and 56. Rather, the Office Action refers to Takahashi as disclosing a hub.

In support of the conclusion that the subject matter of claims 51 and 56 would have been obvious based on the teachings of Takahashi and Yokota, the Office Action asserts that the hub disclosed in Takahashi would have been obviously applied to the substrate disclosed in Yokota.

Applicants previously argued that, even if this rationale is correct (which Applicants do not necessarily concede), the follow-on conclusions fail for the following reasons.

First, the Office Action asserts that the area of the hub reaches 30% of the projected area, thus the hub would have a diameter that is more than 26% of that of the optical disk. However, there is no suggestion that the hub disclosed in Takahashi would completely fill the recess disclosed in Yokota. Although the recess disclosed in Yokota reaches as much as 30% of the overall area of the disk, there is nothing to suggest that a hub placed in that recess would necessarily completely fill that recess or be greater than 26% of the area of the disk.

Second, with reference to Figs. 14-17 of Takahashi, the Office Action broadly concludes that the contact area Y between the hub and the substrate is greater than 0.05 or 0.07 times the overall area of the disk shown. However, such a conclusion cannot be drawn from

the depictions in Figs. 14-17 of Takahashi. Specifically, Figs. 14-17 of Takahashi depict, in a broken manner, the overall area of the disk, and the specification discloses no numerical relationship between the contact area between the hub and the substrate, and the overall projection area of the substrate.

The Office Action, on page 15, responds to Applicants' prior arguments. Applicants respectfully submit that the broad assertions of the Office Action that are required in order to find the specifically recited mathematical relationships of at least independent claim 51 are not supported by the combination of references. The Office Action, in fact, misconstrues certain of the dimensional characteristics recited in claim 51. No reasonable reading of these references supports the conclusion that the specific dimensions recited in claim 51 would have been suggested. Specifically, with reference to Fig. 3 of this application, examples of the respective areas X and Y are clearly depicted. These areas do not correspond to any of the areas suggested by the Office Action.

For at least these reasons, the combination of Yokota and Takahashi does not suggest the combination of features recited in claims 51 and 56. Further, claim 54 is not suggested by the combination of the applied references at least for its dependence on independent claim 51, as well as for the separately patentable subject matter which claim 54 recites.

Accordingly, reconsideration and withdrawal of the rejection of claims 51, 54 and 56 under 35 U.S.C. §103(a) as being unpatentable over the combination of the applied references is respectfully requested.

D. The Office Action, in paragraphs 4-7 rejects claims 52, 53, 55 and 57 as being unpatentable over Yokota and Takahashi in various combinations with Japanese Patent No. JP-A-06-111518 to Abiko, and U.S. Patents Nos. 6,014,365 to Tanaka, 6,222,812 to Yoo et al. (hereinafter "Yoo"), and 6,266,298 to Tsai. These rejections are respectfully traversed.

None of the additionally applied references overcomes the shortfall in the application of Yokota and Takahashi to claim 51 as discussed above. Therefore, claims 52, 53, 55 and 57 are allowable over the combination of the applied references at least for their respective dependence on claim 51, as well as for the separately patentable subject matter that each of these claims recites.

Accordingly, reconsideration and withdrawal of the rejection of claims 52, 53, 55 and 57 under 35 U.S.C. §103(a) as being unpatentable over the combinations of the applied references are respectfully requested.

E. The Office Action, in paragraphs 8-14, rejects claims 58-60, 64-68, 70-75, 78-82 and 84-87 under 35 U.S.C. §103(a) as being unpatentable over Yokouchi in various combinations with Abiko, Yokota and Takahashi, and U.S. Patents Nos. 5,592,459 to Kasahara, 6,256,283 to Fukakusa et al. (hereinafter "Fukakusa"), 5,085,094 to Suzuki, 5,867,346 to Teshima, and 6,154,441 to Sandstrom. These rejections are respectfully traversed.

With regard to independent claim 58, for at least the same reasons discussed above in support of the allowability of claim 76, the feature of a disk plane tilting substantially with respect to a plane perpendicular to an axis of rotation of the substrate and a disk plane tilting symmetrically with respect the axis of rotation, as recited in claim 58, it is not taught, nor would it have been suggested, by Yokouchi, even in combination with any of the above-identified secondary references. In other words, none of the other varyingly applied references overcomes the shortfalls of Yokouchi with respect to independent claim 58, as explained above. Also, the combinations of features recited in each of the enumerated dependent claims are allowable for at least the respective dependence of these claims on independent claims 58, 67 and 76.

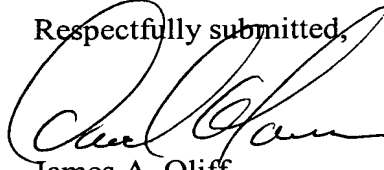
Accordingly, reconsideration and withdrawal of the rejections of claims 58-60, 64-68, 70-75, 78-82 and 84-87 under 35 U.S.C. §103(a) as being unpatentable over the varyingly applied combinations of references are respectfully requested.

F. During the June 17 personal interview, Applicants' representative presented the above proposed amendments to claim 58, 67 and 76, and arguments in support of the allowability of at least independent claim 51, to Examiner Chen. The Examiner indicated that it was likely that these amendments and arguments would overcome the applied prior art references. Examiner Chen indicated that amending claims 58 and 76 in a manner such that the tilt was clearly recited would aid in better distinguishing the subject matter recited in those claims over the prior art references, and would better clarify the features recited in at least those independent claims. Certain of the amendments to at least claims 58 and 76 are undertaken in light of the Examiner's helpful comments during the personal interview.

In view of the foregoing, Applicants respectfully submit that this application is in condition for allowance. Favorable reconsideration and prompt allowance of claims 51-60, 64-68, 70-76, 78-82, and 84-87, in addition to the allowed claims 88-94, and the indicated allowable subject matter of claims 61-63 and 83, are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact Applicants' undersigned representative at the telephone number set forth below.

Respectfully submitted,



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JAO:DAT

Attachment:

Petition for Extension of Time

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